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ABSTRACT

The hypothesis guiding the study was that work motivation attitudes, behavior, and perceptions of others--as leader style concepts--and school climate--as a situational construct--are linearly and curvilinearly related to subordinate, superordinate, self, and organizational effectiveness criteria. A total of 179 principals, 996 teachers, and 41 district level administrators from 39 districts composed the sample. Simple correlational, linear regression, and quadratic regression procedures were used to analyze the data. Overall, 52 significant relationships were found to partially support the hypothesis. Only five of these were curvilinear. The behavior dimensions, two work attitude factors, and the situational variables were the best predictors across the effectiveness types. (Author)

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SIMPLE LINEAR AND CURVILINEAR RELATIONSHIPS OF LEADER STYLE AND SCHOOL CLIMATE TO PRINCIPAL EFFECTIVENESS[1]

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While acknowledging a considerable concern among scholars in diverse fields, Lipham (1964) noted a basic weakness in the knowledge related to leadership. He concluded that, while this interest produced a number of significant findings for educational administration, it also revealed how limited the knowledge of leadership is. Halpin (1966) partially explained this failure of scholars to develop adequate theories of educational leadership with two observations: first, educational researchers have not maximally used the knowledge generated from other disciplines such as the social sciences, general personnel administration, and business management; second, researchers have failed to establish the relationships among leader characteristics, situations, and effectiveness.

Hollander (1971) discerned a trend in the study of leadership to focus increasingly on a system of relationships which combines leadership style with leadership setting. The distinction between the leadership setting and the leader characteristics, traits, or style is an outgrowth of the so-called "situational approach." He defined leadership style as involving the interactive characteristics of the leader's personality which form his relationships with followers. In contrast, he noted that the situational approach maintains that the qualities of the leader are variously elicited, valued, and reacted to as functions of different group settings.

Based on these observations the objective of this study was to increase the scientific understanding of educational leadership by alleviating the methodological problems delineated by Halpin and by incorporating the trends noted by Hollander. Specifically, the purpose was to determine the simple linear and quadratic relationships between a series of leader style and school situation variables with four different effectiveness criteria. Moreover, these variables, individually, have been related to leader effectiveness by organizational theorists or researchers.

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Theoretical Framework

The hypothesis guiding the study was that work motivation attitudes, behavior, and perceptions of others--as leader style concepts--and school climate--as a situational construct-- are linearly and curvilinearly related to subordinate, superordinate, self and organizational effectiveness criteria. The rationale for this hypothesis depends heavily on Stogdill's assertions.

Stogdill (1974) posited that relationships among leader behavior patterns, group reactions, and situations not only are complex but change in response to extremes in each other. He noted that task-oriented, socially distant leaders tend to head groups that are more effective when the situation is easy or difficult for exercise of leadership. The warm person-oriented leader is more effective in moderately favorable situations. On the other hand, Stogdill maintained that groups respond to task-oriented leaders by becoming more cohesive under conditions of high and low favorability, and less cohensive under conditions of medium favorability. Moreover, he observed that leaders and followers probably are unaware of these changes and complex relationships. A possible explanation for this lack of awareness is that these complex relationships, as Stogdill hypothesized, are curvilinear in nature.

Consequently, potentially useful findings could be made by testing variables that have previously demonstrated strong linear relationships with leader effectiveness. For example, using a measure that merges the two-factor theory of work motivation (Herzberg, Mausner, and Snyderman, 1959) and risk propensity, Ford, Borgatta, and Bohrnstedt (1969) found work-attitudes related to managerial effectiveness in industry. Fleishman and Harris (1962), in industry, and Halpin (1966), in education, discovered a connection between a leader's behavior and effectiveness. Finally, Fiedler's (1967) contingency model with the least preferred co-worker as a central concept, has been employed extensively to investigate effectiveness in different organizational types. Hill, Haynes, and Baumgartel (1973) have demonstrated the impact of situational factors of supportiveness and innovativeness to organizational development in industry. Based on these findings the following hypotheses were drawn to guide the investigation.

Hypotheses

The work motivation attitudes as measured on the EWCS questionnaire, the leader behavior as described with the LBDQ, the perceptions of others on the LPC, and the school climate on the two SDQ factors will be significantly linear and curvilinear related to school principals.

Hypothesis One: perceived subordinate effectiveness.

Hypothesis Two: perceived superordinate effectiveness.

Hypothesis Three: organization effectiveness.

Hypothesis Four: self-evaluation of effectiveness.

Hypothesis Five: job satisfaction.

Methodology

Sampling Procedures

School districts. The target population was the principals and teachers in the 49 largest public school districts in the state of Kansas. The sampling procedures for selecting school districts are summarized in the first two parts of Table 1. Based on the number of principals, the 49 school districts were stratified into three groups of 25, 19, and 4. The four largest districts were included in the study. The smaller districts with a minimum of four principal returns also were included in the study. Consequently, 18 districts with five to seven principals and 17 districts with eight to nineteen principals were selected for inclusion. Therefore, a total of 39 districts comprised the sample.

Principals. Each name on a current list of principals by district was assigned a number beginning with one. These principals were then stratified into elementary and secondary levels. Equal numbers from each level were to be selected when possible. Five to eight principals from each of the 35 smaller districts and twelve principals from the four larger districts were chosen with a table of random numbers.

A summary of the number of principals selected and participation rates also are presented in Table 1. Of the 365 selected from the 49 districts 234 or 64.1% of the principals returned the questionnaires. However, 179 or 76.5% returned the research instruments from the 39 districts included in the study. Incomplete data were received from 14 of the 179, so the final sample included 165 principals from 39 districts.

Table 1 about here.

Teachers. Current lists containing the names by school buildings of teachers working under each of the 165 principals also were compiled. Each name on each of the 165 lists was assigned a number beginning from one. Eight teachers were selected from each list using a table of random numbers. A summary of the teacher returns is given in Table 1. A total of 1318 teachers were sampled with 996 or 75.6% returning the questionnaires. This gave an average of 6.04 teacher observations for each principal and building situation.

Superordinates. Finally, one supervisor or superordinate was selected to evaluate the principals and the building situations. In the smaller districts, the superintendent or assistant superintendent was selected. In the larger districts, however, the directors of elementary and secondary education were selected. This group consisted of 41 supervisors. All of these individuals agreed to participate.

Sample characteristics. Table 2 contains the descriptive statistics of the sample. Except for the small number of women principals (only 3.6%), there appears to be sufficient diversity and representativeness to permit meaningful generalizations. For example, different districts sizes, building levels, and educational attainment levels are represented in relatively large numbers from 39 school districts.

Table 2 about here.

Instrumentation

Work motivation factors. The measure of these attitudes was the Educational Work Components Study (EWCS) qestionnaire. Borgatta (1967) developed the original Wrok Components Study (WCS) to merge and operationalize Herzberg's two-factor theory with Blum's findings regarding security orientation among industrial workers. Essentially, the items ask the respondents to judge the desirability of jobs with varying amounts of intrinsic factors, extrinsic factors, and intrinsic combined with risk factors.

Miskel and Heller (1973) and Miskel, Glasnapp, and Hatley (1975) modified the Borgatta instrument to suit the educational organization by replacing words relating to industrial work situations with words pertaining to an educational work situation. These earlier data were used to select six items per subscale, or 36 total, with the highest varimax orthogonal factor loadings. A description of the six factors based on the work of Ford, Borgatta, and Bohrnstedt (1969) and the highest orthogonally loaded items for the present principal sample follow.

1. Potential for personal challenge and development. This factor contains items to measure the desire for creativity and responsibility in the job. The highest factor loading was .75 for the tiem "I would have a chance to further my formal education."
2. Competitiveness desirability and reward of success. These items measure whether an individual seeks job situations where the salary is determined by merit and the competition is keen. The item "salary increases would be a matter of how much effort you put in" had the highest loading of .84.

3. Tolerance for work pressure. This factor contains items measuring attitudes toward situations where the work load might be excessive. The highest factor loading was .73 for the item "I might sometimes have to take work home with me."
4. Conservative security. These items measure the individual's desire for security with well-defined promotion guidelines and job routines. The item "the work would be routine, but highly respected in the community" had factor loading of .76.
5. Willingness to seek reward in spite of uncertainty versus avoidance of uncertainty. This factor contains items measuring the individual's willingness to do interesting work even though the job might be temporary. The highest loading of .82 was found for the item "I could get fired easily."
6. Surround concern. These items measure the person's concern with the hygenic aspects of the job. The item "the lighting would be good" had a factor loading of .80.

The Cronbach's alpha coefficients as estimates of reliability for the original 66 item WCS ranged from .65 to .85 (Borgatta, 1967). The reliability of the 36 item EWCS in the present sample compares very favorably with a range of .72 to .84.

The EWCS was administered as a self-report form. The respondents read: "How desirable would YOU consider each of the following items in a job for YOU? A job where . . . " The items followed, each with a five category, Likert-type response varying from "Completely undesirable, would never take the job" to "Extremely desirable, would favor the job greatly." The response categories were assigned ascending values from 1 to 5.

Leader Behavior Description Questionnaire (LBDQ). The measure of the principal's behavior was the LBDQ. This instrument was developed as part of the Ohio State Leadership Studies, which focused on behavior rather than on personality traits. The original version of the LBDQ was constructed by Hemphill and Coons (1950) to study leader behavior in a variety of situations. In addition, Halpin and Winer (1957) identified Initiating Structure and Consideration as fundamental dimensions of leader behavior through a factor analysis of the responses from 300 aircraft crew members.

The LBDQ contains 15 items related to the Consideration dimension and 15 items related to the Initiating Structure dimension. Halpin (1966) stated that the estimated reliabilities, corrected by the Spearman-Brown formula, for each

factor are .93 and .86 respectively. Using Cronbach's alpha coefficient, the estimated reliabilities for the present sample are .94 and .82 respectively.

The LBDQ is described by Halpin (1966) as being composed of a series of short, descriptive statements of ways in which leaders behave. For the present study, teachers described the frequency with which a principal engages in each form of behavior by checking one of the following five adverbs: always, often, occasionally, seldom, or never. Each item was scored on a scale from 5 to 1.

Least Preferred Co-worker Questionnaire (LPC). The LPC was developed from Fiedler's (1964) findings regarding the relationships between therapists and patients. He discovered that effective psychotherapists perceived their patients to be more like themselves than did reputedly poor therapists.

The LPC score was obtained by asking each principal to think of all persons with whom he has ever worked, and then to describe the one person in his life with whom he has found it most difficult to work. This description was made on a 16 item bipolar eight-point adjective checklist. A simple summing of the item scores on the scale sheet yielded the LPC score.

Fiedler (1967) reported a split-half reliability correlations ranging from .85 to .95. Using alpha coefficients with the present sample on the 16 item form, the estimated reliability of .94 was found.

Situation Description Questionnaire (SDQ). The SDQ was used to measure the climate factors of innovativeness and supportiveness. The original instrument as developed by Hill, Haynes, and Baumgartel (1972) consisted of 30 items with 15 for each of the two factors. These items were based on both the theoretical literature and interviews with business executives.

Adair (1970) reported that the correlation of the SDQ scale scores of 43 matched pairs of industrial managers and their subordinates is very high at .87. In addition, the managers' mean scale score is significantly higher ($p < .001$) than the subordinates' matched mean score. He concluded that the findings are what one would expect from a reliable and valid measure of organizational climate.

To modify the SDQ for use in the public schools and still preserve its content, 20 of the original items were reworded by replacing those words pertaining to an industrial work situation with words indicating an educational work situation. For example, "school district" has been substituted for "company" and "industry."

Following a procedure similar to the one used by the original developers, the SDQ was administered as a self-report form. The respondents were asked to give their perceptions and observations about the school district. The items

followed, each with a four choice Likert-type response. The categories were assigned arbitrary values of 1 to 4.

Because of the slight revision and deletion of items from the industrial form, the instrument's effectiveness had to be established in an educational setting. Consequently, the final SDQ was cross-validated to insure that the items and subscales had adequate reliability. Changes in the items were made on the basis of item statistics from the Summer, 1973 pilot data.

The final instrument consisted of 12 items with each subscale having six items. The means were near the middle of the response scale; the standard deviations indicated adequate variability; and high levels were . 9 for innovativeness and .83 for supportiveness. These statistics supplementing the original theoretical foundations of the SDQ provide evidence for its reliability and validity.

Principal Effectiveness. Two basic types of effectiveness were delineated -- personal and outcome. Basically, the personal criteria include perceptual evaluations or ratings of an administrator's performance, while the outcome criteria include changes in the types or amounts of organizational factors.

"Personal effectiveness" was defined as the level of positive or negative sentiment among the principal's primary reference groups. Sentiment is further defined as a positive or negative evaluation of the principal globally, as a decision-maker and as a group leader.

Personal effectiveness was measured by six items for the Subordinate or Teacher Perceptions of Effectiveness and five items for Superordinate Perceptions of Effectiveness. The items primarily were developed from Wofford's (1971) empirical findings. He found five managerial behavior factors that were related to production and morale, and the questionnaire items used in this study were designed to gauge the principal's effectiveness in each area. Each item followed the question, "How effective is the principal in . . ."

1. Procedural Clarity and Order. This refers to the professional administrator who is thorough, organized, and orderly. The item was, "establishing order and sppropriate procedures which promote school achievement?"
2. Recognition. This concerns an administrator seeking personal recognition for himself. The item was, "acquiring personal recognition for himself?" This item was not included in superordinate effectiveness scale.
3. Interpersonal Relations. This related to a principal as being friendly, warm, and informal. Therefore, the measure was, "developing friendly, warm, and informal relationships with the teacher?"

4. Goal Setting. Wofford called this dynamic achievement, in which the administration sets specific goals and performance measures. The item, "setting specific goals and performance measures for the teachers?" was used to quantify this factor.
5. Decision-Making Independence. This identifies the manager who is able to make decisions as they are needed within the building without undue dependence on the teachers or central office administrators. The item was, "maintaining independence from subordinates and superiors in exercising the responsibilities of the principalship (He is his own man.)"
6. Global. This alludes to the overall perceptions of the reference group members. The item was, "the overall performance of fulfilling the position's responsibilities?"

These six questions were combined and administered to teachers as self-report forms. The teachers read: "How effective is the principal in. . ." The items followed, each with a six category, Likert-type response varying from "Ineffective" to "Very effective." The categories were assigned ascending values of one to six. The values of the six items were summed to produce the "Total Perceived Subordinate Effectiveness" measure.

The item statistics are indicative of good research instruments. The means are near the conceptual median of four for the teacher perceptions and three for superordinate perceptions. The standard deviations in excess of 1.0 for adequate variance while the internal correlations are reasonable high. This is supported by the alpha levels, as estimates for reliability, of .80 and .73.

"Organizational effectiveness" consisted of Caplow's (1964) four dimensions of organization effectiveness. These are stability, integration, voluntarism, and achievement. A two step procedure was used to operationalize these dimensions on a frequency by teacher basis.

The first step was an open-end item on the mail questionnaire to the principals and their teachers. They were simply asked to list recent programs that have been started or maintained that contribute to each organizational effectiveness dimension. The stem or introductory question was, "What new programs or procedures have been planned or introduced during this school year . . ." The items by dimension were the following: (a) To develop new curricula or to change the instructional methods? (stability); (b) To increase the interpersonal relations and communications or to control internal problems among the student body, staff, and administration? (Integration); (c) To improve faculty morale and satisfaction? (voluntarism); (d) To decrease student discipline problems or dropout rate and to raise student achievement? (achievement).

The responses were content analyzed for the number of different programs under each dimension. Apparent duplications were deleted and a list of new programs by dimension compiled.

After returning this list to the principal, the second step was a telephone interview with the principal to cross-validate the types and frequency of each program that he has begun or continued during the past school year. Essentially, each principal was asked: (a) Does the list include all of the new programs? If not, what are the others? (b) Are any of the items redundant?

To minimize the bias introduced by a differing number of responses for each building, an "Index for Organization Effectiveness" was calculated. This was accomplished by taking the number of new programs started and maintained and dividing by the number of teacher responses. Admittedly, this was rather crude measure. But it is maintained that those principals making the most attempts to improve the stability, integration, voluntarism, and achievement variables will achieve greater organizational effectiveness.

Data Collection Procedures

The first method of data collection was a mail questionnaire to the principals and the teachers. The principal questionnaire was composed of the EWCS, the LPC, and the open-ended organizational effectiveness items. The teacher questionnaire contained of the SDQ, the LBDQ, the PEQ, and organizational effectiveness items. There were two follow-up mailings spaced two weeks apart encouraging nonrespondents to reply.

The second data collection procedure was the telephone interview with each principal. The third procedure was the personal interview with the principals' immediate superiors. Finally, the self-evaluation and job-sacisfaction measures were completed through a mail procedure in April, 1974.

Data Analysis Procedures

Three procedures were used to test the hypotheses. First, Pearson product-moment correlation coefficients (r) were calculated. These simply gave a set of indices of the directions and magnitudes of relation between all of the variables and in particular, between each independent and each criterion variable.

The second step was simple linear regression, a notion similar to correlation. This involves predicting the criterion score from the independent variable score using the correlation coefficient as a basis.

The third technique was simple curvilinear regression analysis. This is essentially the same as simple linear regression except that the independent variable was squared before being entered into the regression equation.

Findings

Table 3 details the means and standard deviations used in the three analysis procedures. For convenience, abbreviations for the variables are indicated in the second column of the table. Using these abbreviations and the five criterion variables, Table 4 presents the data summaries for testing the five hypotheses.

Table 3 about here.

Hypothesis One

The simple correlational, linear and curvilinear relationships between each predictor variable and principals' perceived effectiveness by teachers appear in column one of Table 4. The climate measures of innovativeness and supportiveness, the EWCS subscale competitiveness desirability, and both LBDQ subscales were positively correlated ($r_{.95} > .15$ and $r_{.99} > .20$, $df = 163$) with high teacher perceptions of principal effectiveness. Conversely, the least preferred co-worker and experience in position were negatively supported by the significant linear regression coefficients as tested by the F ratios in the last column ($F_{.95} = 3.90$ and $F_{.99} = 6.79$, $df = 1,163$). With the exception of principals per district, there were no significant quadratic relationships. Principals in smaller and larger districts, however, were perceived as more effective than principals in medium sized districts.

Table 4 about here

Hypothesis Two

The linear and polynomial relationships for principals' perceived effectiveness by district level administrators are summarized in column two of Table 4. As with teacher perceptions, several significant relationships were found. The significant positive variable relationships with superordinate effectiveness included teachers per principal, EWCS competitiveness desirability, and initiating structure. Conversely, the negative relationships include EWCS conservative security, least preferred co-worker (LPC), and experience. No significant quadratic relationships were found for superordinate's perceptions of principal effectiveness.

Hypothesis Three

Continuing with the hypothesis testing, the relationships for organizational effectiveness constitute column three of Table 4. Significant positive correlations with this criterion included the following: The climate dimensions of supportiveness and innovativeness as well as both LBDQ measures of consideration and initiating structure. The significant negative correlates again were the EWCS conservative security factor and the least preferred co-worker (LPC). The

F ratios were supportive in all cases. Furthermore, significant curvilinear relations were found for the teachers-principal ratio and the supportiveness variables. With both variables, the mid-ranges of the continua were higher.

Hypothesis Four

Column four of Table 4 contains the data summary for the relationships with the principals' perceptions of their effectiveness or goal attainment. Only two of the situational variables had significant correlations and F ratios. These were taxable income per pupil (or wealth) and innovativeness climate. These variables also are highly correlated at .50 with each other. This might suggest that principals judge their own effectiveness by the district's innovative thrusts and its wealth to finance such efforts.

Hypothesis Five

The relationships between satisfaction as the criterion variable and independent and dependent variable are included in the final column of Table 4. Supportiveness climate and, contrary to earlier finding, experience in position and educational degree level were positively related to job satisfaction of principals. The two significant quadratic relationships were with taxable income per pupil and LBDQ consideration. All of these variables suggest a personal dimension to satisfaction. The length of time in a job and education levle probably are considered personal attainmnets. District wealth, supportive climate, and personal consideration (in the middle range) are variables that provide a pleasant working environment for administrators.

Summary and Implications

The hypotheses posited that significant linear and quadratic relationships would exist between each independent and mediating variable and each type of total effectiveness. From the 240 simple correlational, linear, and curvilinear regression relationships, a total of 52 significant relationships were found. But of the 52, only five of a possible 80 curvilinear relationships proved to be significant beyond the 5% level. Consequently, the curvilinear portions of the hypotheses were not supported.

However, each of the five effectiveness types had from two to eight significant predictors. Subordinate effectiveness was highest with eight predictors. Organization and superordinate effectiveness had seven and six predictors respectively. Satisfaction was predicted by five variable while self-evaluation of offectiveness was predicted by only two.

Further finding included the mutually supportive results that high initiating structure, low LPC, and innovativeness climate were related to three effectiveness criteria. In other words, the individual dimensions of task

orientation -- high initiating structure and low LPC -- in addition to the related situational variable of high innovativeness were significantly related to subordinate, superordinate, and organization effectiveness. Similarly, supportiveness climate and leader consideration, as indicators of interpersonal conditions, were positively related to subordinate and organizational effectiveness.

Only two of the EWCS motivational subscales were related to effectiveness. Competitiveness desirability, an intrinsic factor with a risk component, was positively related to subordinate and superordinate effectiveness. Conservative security was negatively related to superordinate perceptions and organization effectiveness.

Finally, the two leader demographic variables of position experience and education commonly associated with administrative effectiveness demonstrated interesting relationships. Experience was negatively related to subordinate and superordinate effectiveness, while education level and experience were positively related only to satisfaction. Perhaps these demographic variables, as primary criteria for principal selection, need to be re-evaluated in light of these findings.

Educational and Scientific Importance

The different style and situation variable patterns for each criterion suggest a complex series of relationships for developing theoretical models for principal effectiveness. For research, the linear model was better and indicates a limited potential, in the immediate future, for curvilinear relationships. Moreover, different measures of effectiveness were developed that should prove useful in future research. For practice, the findings do not support the use of the traditional selection variables in personnel decisions regarding principals.

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TABLE 1

Summary of Sampling Procedures

Final District and Principal Samples

Number Principals/ District	Final District Sample N	Final Principal Sample N	Principal Returns N	Principal Returns %	Useable Returns N	Useable Returns %
5-7	18	102	71	69.6	65	63.7
8-19	17	86	71	82.6	64	74.4
Over 20	4	46	37	80.4	36	78.2
Total	39	234	179	76.5	165	70.5

Final Principal and Teacher Samples

Number Principals/ District	Principals in Study N	Teacher Sample N	Teacher Returns N	Teacher Returns %	Per Principal
5-7	65	518	381	73.5	5.86
8-19	64	512	391	76.1	6.11
Over 20	36	288	224	77.8	6.22
Total	165	1318	996	75.6	6.04

TABLE 2

Frequencies of the Descriptive Categorical Variables for the Final Sample (N=165)

Variable	Frequency Absolute(N)	Relative(%)
A. Sex		
1. Female	6	3.6
2. Male	159	96.4
B. Principals Per District		
1. 5-7	65	39.4
2. 8-19	64	38.8
3. 20 or more	36	21.8
C. Building Level		
1. Elementary	85	51.5
2. Secondary	80	48.5
D. Educational Degree Level		
1. Masters	58	35.2
2. Masters Plus 30	78	47.3
3. Specialist	16	9.7
4. Doctorate	13	7.9

TABLE 3

Means and Standard Deviations for the Variables Used in the Simple Polynomial Regression Analysis Procedures (N = 165)

Variables	Abb.	Items Per Variable	Mean(X)	SD
School Characteristics				
1. Teachers Per Principal	TPR		29.21	20.85
2. Taxable Income Per Pupil	TIP		6209.29	2147.06
3. Principals Per District	PPD		1.82	.76
Organizational Climate				
4. Innovativeness	INN	6	14.37	2.21
5. Supportiveness	SUP	6	16.56	2.14
Work Motivation Attitudes (EWCS)				
6. Pot. Per Chal. & Dev.	PPCD	6	25.10	2.18
7. Competitiveness Desirability	CD	6	21.27	3.60
8. Tolerance for Work Pressure	TWP	6	20.28	2.45
9. Conservative Security	CS	6	18.02	3.37
10. Willingness to Seek Reward	WSR	6	14.50	4.02
11. Surround Concern	SC	6	23.78	2.24
Leader Perceptions of Others				
12. Least Preferred Co-Worker	LPC	16	62.52	21.78
Leader Behavior (LBDQ)				
13. Consideration	CON	15	42.15	7.40
14. Initiating Structure	IS	15	39.44	4.82
Personal Demographic				
15. Position Experience	PEX		7.08	6.25
16. Education Level	EL		2.90	.87
Criterion--Effectiveness				
Subordinate Perceptions		6	24.78	4.17
Superordinate Perceptions		5	16.48	5.22
Organization		4	2.62	1.15
Self Perceptions		1	3.72	.49
Satisfaction		1	4.10	.87

TABLE 4

Summary of the Simple Polynomial Regression Analyses Predicting the Five Criterion Variables

Predictor Variable	Criterion Variables--Effectiveness and Satisfaction									
	Subordinate		Superordinate		Organization		Self-Evaluation		Satisfaction	
	r	F	r	F	r	F	r	F	r	F
TPR	.01		.27**		.13		-.03		-.04	
Linear		.03		12.74**		2.57		.17		.20
Quad.		2.47		.18		5.80*		1.50		.14
TIP	.06		.00		.12		.16*		.09	
Linear		.49		.00		2.55		4.48*		1.41
Quad.		.42		.02		1.50		.48		5.59*
PPD	.12		.00		.14		.09		.02	
Linear		2.34		.00		3.26		1.50		.10
Quad.		7.27**		.20		.00		.88		1.01
SDQ-INN	.27**		-.02		.29**		.17*		.03	
Linear		12.80**		.08		15.05**		4.87*		.14
Quad.		2.59		.48		.05		.00		.54
SDQ-SUP	.37**		.04		.26**		.07		.18*	
Linear		25.82**		.25		12.65**		.71		5.23*
Quad.		.22		.21		5.34**		.62		.75
EWCS 1-PPCD	.06		.07		.08		-.11		.05	
Linear		.56		.75		1.02		2.13		.35
Quad.		1.19		.04		.43		.04		.02
EWCS 2-CD	.22**		.21**		.12		.10		-.04	
Linear		8.07**		7.33*		2.47		1.50		.23
Quad.		.62		.02		.02		1.58		.27
EWCS 3-TWP	.05		-.02		.10		-.02		.06	
Linear		.34		.04		1.79		.04		.66
Quad.		.80		.04		.98		3.25		.58

Table 4 Continued

Predictor Variables	Subordinate		Superordinate		Organization		Self-Evaluation		Satisfaction	
	r	F	r	F	r	F	r	F	r	F
EWCS 4-CS	.02		-.20**		-.22**		.02		.09	
Linear		.04		6.83**		8.13**		.04		1.32
Quad.		.38		2.76		.01		.17		.00
EWCS 5-WSR	.01		.03		.05		-.11		-.11	
Linear		.01		.17		.36		2.04		2.13
Quad.		.38		.04		.14		.04		.00
EWCS 6-SC	.01		-.10		-.09		.02		.10	
Linear		.01		1.56		1.40		.04		1.68
Quad.		3.89		.02		1.62		1.92		.00
LPC	-.17*		-.18*		-.20**		.13		.02	
Linear		4.87*		5.27*		6.84**		2.58		.08
Quad.		.08		.91		.30		.12		.00
LBDQ 1-CON	.76**		.11		.29**		-.03		.02	
Linear		230.14**		1.99		15.04**		.17		.07
Quad.		.36		1.78		.26		.71		5.60*
LBDQ 2-IS	.69**		.30**		.32**		-.01		.07	
Linear		145.60**		16.43**		18.64**		.04		.74
Quad.		.61				3.08		.83		.36
PEX	-.16*		-.19*		-.11		.04		.24**	
Linear		4.20*		5.95*		2.04		.25		9.85**
Quad.		2.26		.75		3.51		1.54		.62
EL	.04		.00		.11		.01		.17*	
Linear		.22		.00		2.04		.00		4.97*
Quad.		.55		2.49		1.79		.50		.45

*Significantly differnet from zero at the 5% level.
**Significantly different from zero at the 1% level.